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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,018	09/11/2002	Marc Schaepkens	125397	7553

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
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NISKAYUNA, NY 12309

EXAMINER	
LEURIG, SHARLENE L	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/065,018	SCHAEPKENS ET AL.
	Examiner	Art Unit
	Sharlene Leurig	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) *1-20,36-39 and 50-53* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-35 and 40-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on December 22, 2004, PROSECUTION IS HEREBY REOPENED. The new non-final rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 21-25, 40, 41 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record).

Regarding claims 21 and 40, Graff discloses a light-emitting device comprising a flexible (column 2, line 22), transparent substrate (105) having a first and a second surface, one of which is coated with a barrier coating composed of a variety of possible materials, including combinations of materials such as silica and alumina (column 2, lines 9-12), and an organic electroluminescent device (120) comprising an organic EL layer (210) disposed between two electrodes (200 and 220) that is disposed on the substrate.

Graff fails to exemplify the barrier layer having a composition that varies continuously across its thickness.

Misiano teaches a barrier layer for use on a flexible plastic substrate. Misiano's barrier layer is composed of alumina and silica, and the composition varies continuously across the thickness of the layer, as shown in Figure 3 (columns 3 and 4, lines 58-64). Such a composition yields a barrier layer that resists yellowing (column 1, line 60), has good water and oxygen resistance (column 1, line 63), and can bear repeated flexing without deforming (column 2, line 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layer of Graff with a continuously varying barrier layer of the same materials as Graff's, in order to provide a barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano.

Regarding claims 22 and 45, Graff discloses a transparent film (220) having a second barrier layer (170) formed thereon. The transparent film is disposed on the OLED (120) opposite the flexible substrate (105).

Graff fails to exemplify a continuously varying, graded composition barrier layer.

Misiano teaches a graded barrier layer having a continuously varying composition.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the second barrier layer of Graff with a continuously varying barrier layer in order to provide another barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano.

Regarding claim 23, Graff discloses a flexible, transparent substrate made of polyethyleneterephthalate, polyimide, polyethersulfone, and other polymers (column 5, lines 9-15).

Regarding claims 24 and 25, Graff discloses a coating material (140 and 170) made from a combination of inorganic, ceramic materials, including combinations of oxides, carbides and nitrides of silicon, aluminum, titanium, indium and tin (column 2, lines 9-12).

Graff fails to exemplify a continuously varying, graded composition barrier layer.

Misiano teaches a graded composition barrier layer of alumina and silica.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layer of Graff with a continuously varying barrier layer of silica and alumina, in order to provide a barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano.

Regarding claim 41, Graff discloses the method of making a light-emitting device comprising the steps of depositing a first electrically conducting material (200) on the barrier coating (140), depositing the organic EL layer (210) on the first electrode, and forming a second electrode (220) by depositing a second electrically conducting material on the organic EL layer.

Regarding claim 46, Graff discloses disposing a second flexible substrate (190) on the organic EL member (120), the second substrate having a second barrier coating (170) thereon.

Graff fails to exemplify a continuously varying, graded composition barrier layer.

Misiano teaches a graded barrier layer having a continuously varying composition.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the second barrier layer of Graff with a continuously varying barrier layer in order to provide another barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano.

Regarding claim 47, Graff discloses a method of making a light-emitting device comprising the steps of providing a flexible, transparent substrate (105), depositing a first barrier coating (140) by plasma-enhanced chemical vapor deposition, sputtering or electron-cyclotron-resonance-plasma-enhanced chemical vapor deposition (column 4, lines 56-65), disposing an organic EL member (120) comprising an organic EL layer disposed between two electrodes on the flexible substrate, and disposing a transparent film (180) coated with a second barrier coating on the organic EL member, the second barrier coating being deposited by plasma-enhanced chemical vapor deposition, sputtering or electron-cyclotron-resonance-plasma-enhanced chemical vapor deposition.

Graff fails to exemplify a continuously varying, graded composition barrier layer.

Misiano teaches a graded barrier layers formed on a transparent, flexible substrate by plasma-enhanced chemical vapor deposition or other techniques (column 2, lines 26-31).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the first and second barrier layers of Graff with continuously varying barrier layers in order to provide barrier layers that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano.

4. Claims 26, 42, 43 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record) and further in view of Baldo et al. (6,097,147) (of record).

Graff discloses an OLED substrate coated with a barrier coating of metal oxides.

Graff fails to exemplify the barrier layer having a composition that varies continuously across its thickness.

Misiano teaches a barrier layer for use on a flexible plastic substrate. Misiano's barrier layer is composed of alumina and silica, and the composition varies continuously across the thickness of the layer, as shown in Figure 3 (columns 3 and 4, lines 58-64). Such a composition yields a barrier layer that resists yellowing (column 1, line 60), has good water and oxygen resistance (column 1, line 63), and can bear repeated flexing without deforming (column 2, line 1).

Graff and Misiano lack disclosure of a reflective layer formed near the OLED.

Baldo teaches a reflective metal layer (116) formed over the light-emitting layer in order to reflect impinging light beams that would reduce the display quality of the device (column 4, line 2).

Regarding claim 42, Baldo teaches a placement of the reflective layer between the light-emitting layer and the cathode that is opposite the transparent substrate (110).

Regarding claim 43, Graff discloses a second barrier coating (130) that is formed over the cathode (220). The placement of the reflective layer taught by Baldo is between a cathode and a light-emitting layer and therefore the combination of Baldo, Misiano and Graff would result in the second barrier coating on the reflective layer.

Regarding claim 48, Graff discloses a substantially transparent film (190). The reflective layer taught by Baldo is disposed over the emitting layer but under the cathode. Therefore the placement of the reflective layer if combined with Graff would be between the organic EL layer and the transparent film.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layer of Graff with a continuously varying barrier layer of the same materials as Graff's, in order to provide a barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano, and to further modify it with a reflective metal layer formed over the emitting layer in order to reflect light beams that would reduce the display quality of the device, as taught by Baldo.

5. Claims 27, 28, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record) and further in view of Wolk et al. (6,291,116) (of record).

Graff discloses a light-emitting device comprising a flexible (column 2, line 22), transparent substrate (105) having a first and a second surface, one of which is coated with a barrier coating of a combination of metal oxides (column 2,

lines 9-12), and an organic electroluminescent device (120) comprising an organic EL layer (210) disposed between two electrodes (200 and 220) that is disposed on the substrate. Graff discloses a flexible, transparent substrate made of polyethyleneterephthalate, polyimide, polyethersulfone, and other polymers (column 5, lines 9-15). Graff discloses a coating material (140 and 170) made from a combination of inorganic, ceramic materials, including combinations of oxides, carbides and nitrides of silicon, aluminum, titanium, indium and tin (column 2, lines 9-12).

Graff fails to exemplify the barrier layer having a composition that varies continuously across its thickness.

Misiano teaches a barrier layer for use on a flexible plastic substrate. Misiano's barrier layer is composed of alumina and silica, and the composition varies continuously across the thickness of the layer, as shown in Figure 3 (columns 3 and 4, lines 58-64). Such a composition yields a barrier layer that resists yellowing (column 1, line 60), has good water and oxygen resistance (column 1, line 63), and can bear repeated flexing without deforming (column 2, line 1).

Graff and Misiano lack disclosure of the materials forming the organic light-emitting layers.

Regarding claims 27 and 33, Wolk teaches an OLED having a layer of poly(n-vinylcarbazole) for the hole transporting layer (column 23, Table 5).

Regarding claims 28 and 33, Wolk teaches perylene as a dopant for the electron transporting layer (column 30, lines 52).

Regarding claim 32, Wolk teaches a hole transport layer formed between the anode and the emitter layer, which enhances the transport of holes, as an alternative structure to an emissive device having no distinct emissive layer, and further teaches both a hole blocking layer and an electron blocking layer formed between the anode and the cathode and the emitting layer, which enhances the injection and transport of holes and electrons into the recombination layer (column 15, lines 12-20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layer of Graff with a continuously varying barrier layer of the same materials as Graff's, in order to provide a barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano, and to further modify the OLED disclosed by Graff to have a hole transport layer formed of a material such as a vinylcarbazole, to have an electron transporting layer doped with perylene, and to have additional layers formed between the electrodes and the emitting layer to improve the transport and injection of electrons and holes, all as taught Wolk, in order to provide an OLED having well-understood and readily-available materials that enhance light emission.

6. Claims 29-31 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record) and further in view of Collins, III et al. (6,642,652) (of record).

Graff discloses an OLED coated with a barrier coating.

Graff fails to exemplify the barrier layer having a composition that varies continuously across its thickness.

Misiano teaches a barrier layer for use on a flexible plastic substrate. Misiano's barrier layer is composed of alumina and silica, and the composition varies continuously across the thickness of the layer, as shown in Figure 3 (columns 3 and 4, lines 58-64). Such a composition yields a barrier layer that resists yellowing (column 1, line 60), has good water and oxygen resistance (column 1, line 63), and can bear repeated flexing without deforming (column 2, line 1).

Graff lacks disclosure of a scattering layer or a phosphor layer.

Collins teaches an LED having a phosphor for absorbing light emitted from the EL layer and re-emitting light of a different wavelength (column 2, lines 48-51) embedded in a silicone polymer matrix (column 5, lines 38-65). The phosphor may be (Y,Gd).sub.3 Al.sub3 O.sub.12:Ce (column 5, line 49) or a variety of other yttrium aluminum garnet phosphors (column 7, lines 58-62). Collins teaches that this phosphor layer may further contain particles of titanium oxide that scatter the light to improve the scattering of the light emitted from the active region of the LED to thereby increase the absorption of light by the phosphor particles (column 5, line 65 to column 6, line 7). The light emitted by the phosphor is in the visible EM range (column 5, lines 52-56).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layer of Graff with a continuously

varying barrier layer of the same materials as Graff's, in order to provide a barrier layer that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano, and to further modify the OLED disclosed by Graff to have a phosphor layer in order to offer more variety of the wavelengths of light that can be emitted from the device, and to further modify the layer containing the phosphor particles to have scattering particles therein in order to improve the amount of light converted, as taught by Collins.

7. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record) and further in view of Baldo et al. (6,097,147) (of record), and further in view of Wolk et al. (6,291,116) (of record).

Graff discloses a light-emitting device comprising a flexible (column 2, line 22), transparent substrate (105) having a first and a second surface, one of which is coated with a barrier coating formed of a mixture of two or more types of metal oxides (column 2, lines 9-12), and an organic electroluminescent device (120) comprising an organic EL layer (210) disposed between two electrodes (200 and 220) that is disposed on the substrate. Graff discloses the transparent film (220) has a second barrier layer (170) formed thereon. The transparent film is disposed on the OLED (120) opposite the flexible substrate (105). Graff discloses a flexible, transparent substrate made of polyethyleneterephthalate, polyimide, polyethersulfone, and other polymers (column 5, lines 9-15). Graff discloses a coating material (140 and 170) made from a combination of

inorganic, ceramic materials, including combinations of oxides, carbides and nitrides of silicon, aluminum, titanium, indium and tin (column 2, lines 9-12).

Graff fails to exemplify the barrier layers having a composition that varies continuously across its thickness.

Misiano teaches a barrier layer for use on a flexible plastic substrate. Misiano's barrier layer is composed of alumina and silica, and the composition varies continuously across the thickness of the layer, as shown in Figure 3 (columns 3 and 4, lines 58-64). Such a composition yields a barrier layer that resists yellowing (column 1, line 60), has good water and oxygen resistance (column 1, line 63), and can bear repeated flexing without deforming (column 2, line 1).

Graff and Misiano lack disclosure of a reflective layer formed near the OLED.

Baldo teaches a reflective metal layer (116) formed over the light-emitting layer and opposite the substrate in order to reflect impinging light beams that would reduce the display quality of the device (column 4, line 2).

Graff further lacks disclosure of the materials forming the light-emitting layers.

Wolk teaches an OLED having a layer of poly(n-vinylcarbazole) for the hole transporting layer (column 23, Table 5) and perylene as a dopant for the electron transporting layer (column 30, lines 52).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layers disclosed by Graff to have

continuously varying barrier layers, in order to provide barrier layers that resist yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano, and to further modify it to have a reflective layer formed over the light-emitting layer opposite the substrate in order to reflect light beams that would reduce the display quality of the device, as taught by Baldo, and to further modify it to have light-emitting layers formed of perylene and poly-n-vinylcarbazole, as taught by Wolk, in order to provide well-understood materials for good light emission.

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record) and further in view of Baldo et al. (6,097,147) (of record), and further in view of Wolk et al. (6,291,116) (of record) as applied to claim 34 above, and further in view of Collins, III et al. (6,642,652) (of record).

Graff discloses an OLED having the limitations discussed above with regard to claim 34, but lacks disclosure of the barrier layer having a composition that varies continuously across its thickness.

Misiano teaches a barrier layer for use on a flexible plastic substrate. Misiano's barrier layer is composed of alumina and silica, and the composition varies continuously across the thickness of the layer, as shown in Figure 3 (columns 3 and 4, lines 58-64). Such a composition yields a barrier layer that resists yellowing (column 1, line 60), has good water and oxygen resistance

(column 1, line 63), and can bear repeated flexing without deforming (column 2, line 1).

Neither Graff nor Baldo discloses a reflective layer or the materials of the light-emissive layers

Baldo teaches a reflective layer to reflect impinging light beams.

Wolk teaches perylene and poly-n-vinylcarazole as materials for the light-emissive layers.

Graff, Baldo and Wolk lack disclosure of a scattering layer having phosphor particles.

Collins teaches an LED having a phosphor for absorbing light emitted from the EL layer and re-emitting light of a different wavelength (column 2, lines 48-51) embedded in a silicone polymer matrix (column 5, lines 38-65). Collins teaches that this phosphor layer may further contain particles of titanium oxide that scatter the light to improve the scattering of the light emitted from the active region of the LED to thereby increase the absorption of light by the phosphor particles (column 5, line 65 to column 6, line 7).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the barrier layers disclosed by Graff to have continuously varying barrier layers, in order to provide barrier layers that resist yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano, and to further modify it to have a reflective layer formed over the light-emitting layer opposite the substrate in order to reflect light beams that would reduce the display quality of the device, as taught by Baldo, and to further

modify it to have light-emitting layers formed of perylene and poly-n-vinylcarbazole, as taught by Wolk, in order to provide well-understood materials for good light emission, and to further modify it to have a phosphor layer in order to offer more variety of the wavelengths of light that can be emitted from the device, and to further modify the layer containing the phosphor particles to have scattering particles therein in order to improve the amount of light converted, as taught by Collins.

9. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record) and further in view of Iskanderova et al. (5,683,757).

Graff discloses a method of making a light-emitting device comprising the steps of providing a flexible, transparent substrate (105), depositing a first barrier coating (140) by plasma-enhanced chemical vapor deposition, sputtering or electron-cyclotron-resonance-plasma-enhanced chemical vapor deposition (column 4, lines 56-65) on at least one of the two surfaces of the substrate, disposing an organic EL member (120) comprising an organic EL layer disposed between two electrodes on the flexible substrate, and disposing a transparent film (180) coated with a second barrier coating on the organic EL member, the second barrier coating being deposited by plasma-enhanced chemical vapor deposition, sputtering or electron-cyclotron-resonance-plasma-enhanced chemical vapor deposition.

Graff fails to exemplify a continuously varying, graded composition barrier layer.

Misiano teaches a graded barrier layers formed on a transparent, flexible substrate by plasma-enhanced chemical vapor deposition or other techniques (column 2, lines 26-31).

Neither Graff nor Misiano exemplifies the barrier coating material penetrating the substrate upon deposition.

Iskanderova teaches deposition techniques for creating continuous, graded barrier coatings (column 7, lines 44-46) of metal oxides (column 8, lines 15-16) on flexible (column 19, line 61), polymeric substrates (column 8, lines 23-25) involving plasma deposition in which ions being deposited penetrate the substrate to a certain degree, thereby creating a graded transition between the protective layer and the substrate (column 8, lines 10-22). Iskanderova teaches this technique as providing substrates with improved resistance to oxidative degradation (column 7, line 40) in applications requiring transparent polymeric substrates (column 6, lines 52-56).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the first and second barrier layers of Graff with continuously varying barrier layers in order to provide barrier layers that resists yellowing while being water and oxygen impermeable and wrinkle resistant, as taught by Misiano, and to further modify the method of manufacture of Graff to include ion-implanting deposition to create a smooth transition between the

substrate and the protective layer in order to provide a barrier layer/substrate structure more resistant to oxidation, as taught by Iskanderova.

Allowable Subject Matter

10. The indicated allowability of claim 49 is withdrawn in view of the newly discovered reference(s) to Iskanderova et al. (5,683,757). Rejections based on the newly cited reference(s) are above.

Response to Arguments

11. Applicant's arguments, see Appeal Brief, filed December 22, 2004, with respect to the rejection(s)of claim(s) 21-35 and 40-48 under 35 U.S.C. 102(e) as being anticipated by Graff (6,522,067) and 35 U.S.C. 103(a) as being unpatentable over the combinations of Graff, Baldo, Wolk and Collins, have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made in view of Graff et al. (6,522,067) (of record) in view of Misiano et al. (5,462,779) (of record).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOSEPH WILLIAMS
PRIMARY EXAMINER

sll